IN THE CLAIMS:

1. (Currently Amended) A method for switching multi-rate communications within a communications format comprised of frames, each frame having multiple timeslots, the method comprising:

obtaining a first data collection comprising m sets of data;

allocating p timeslots from a frame to the first data collection, where p is less than m;

providing at least one overflow timeslot from the frame for use with different data collections;

filling ~~a first set of~~ the p timeslots with p sets of data from ~~a first data collection of a first type, wherein the first data collection includes~~ the m sets of data and ~~p is less than m~~ within the first data collection; and

loading the at least one overflow timeslot with at least one overflow set of data from the m sets of data within the first data collection, ~~wherein the overflow set of data exceeds a size of the first set of p timeslots~~.

2. (Original) A method in accordance with claim 1 further comprising:

filling a second set of p timeslots with p sets of data from a second data collection of the first type, wherein the second data collection includes m sets of data.

3. (Original) A method in accordance with claim 1 further comprising:

loading the at least one overflow timeslot with at least one overflow set of data from a second data collection of the first type, wherein the second data collection includes m sets of data.

4. (Original) A method in accordance with claim 1 further comprising:

filling a second set of p timeslots with p sets of data from a second data collection, wherein the second data collection is of a second type that is different than the first type and the second data collection includes p sets of data.

5. (Original) A method in accordance with claim 1 further comprising:

filling a second set of p timeslots with p sets of data from a second data collection, wherein the second data collection is of a second type that is different than the first type, wherein the second type is a DS1 type; and

filling a second set of p timeslots with p sets of data from the second data collection.

6. (Original) A method in accordance with claim 1 wherein a network system includes a number of timeslot interchanges, said method further comprising determining whether a capacity of the timeslot interchanges to support a number of connections of the first type and of a second type is exceeded if a connection is routed via the timeslot interchanges.

7. (Original) A method in accordance with claim 1 wherein a network system includes at least two timeslot interchanges coupled to at least one space switch, different first and second routes exist via the at least two timeslot interchanges and the at least one space switch, said method further comprising:

routing the p sets of data of the first data collection via the first route if the first route is unblocked; and

selecting p timeslots of the second route if the first route is blocked.

8. (Original) A method in accordance with claim 1 wherein a network system includes at least two timeslot interchanges coupled to at least one space switch, different first route and second routes exist via the at least two timeslot interchanges and the at least one space switch, said method further comprising:

selecting p timeslots of the second route if the first route is blocked; and

performing a sequential search for the second route by identifying, in a consecutive fashion within the at least two timeslot interchanges, the p timeslots.

9. (Original) A method in accordance with claim 1 wherein a network system includes at least two timeslot interchanges coupled to at least one space switch, a first route and a second route exists via the at least two timeslot interchanges and the at least one space switch, and the first route is different than the second route, said method further comprising:

selecting p timeslots of a second route different than a first route via at least two timeslot interchanges and at least one space switch for transporting the p sets of data from the first data collection if the first route is blocked; and

performing a uniform search for the second route by determining whether the p timeslots have less load than loads of remaining timeslots within the at least two timeslot interchanges.

10. (Original) A method in accordance with claim 1 wherein a network system includes at least two timeslot interchanges coupled to at least one space switch, different first route and second routes exist via the at least two timeslot interchanges and the at least one space switch, said method further comprising selecting an nth timeslot of the second route if the first route is blocked.

11. (Original) A method in accordance with claim 1 wherein a network system includes at least two timeslot interchanges coupled to at least one space switch, different first route and second routes exist via the at least two timeslot interchanges and the at least one space switch, said method further comprising:

selecting an nth timeslot of the second route if the first route is blocked; and

performing a sequential search for the second route by identifying, in a consecutive fashion within the at least two timeslot interchanges, the nth timeslot.

12. (Original) A method in accordance with claim 1 wherein a network system includes at least two timeslot interchanges coupled to at least one space switch, different first route and second routes exist via the at least two timeslot interchanges and the at least one space switch, said method further comprising:

selecting an nth timeslot of the second route if the first route is blocked; and

performing a uniform search for the second route by determining whether the nth timeslot has less load than loads of remaining timeslots within the at least two timeslot interchanges.

13. (Original) A method in accordance with claim 1 wherein a network system includes a first and a second timeslot interchange, and the first timeslot interchange outputs a first system data format (SDF) frame and the second timeslot interchange outputs a second SDF frame, said method further comprising initializing to perform a first call packing in the second SDF frame and then performing the first call packing in the first SDF frame if a third data collection is of a third type that is different than the first type and a second type.

14. (Original) A method in accordance with claim 1 wherein a network system includes a first and a second timeslot interchange, and the first timeslot interchange outputs a first system data format (SDF) frame and the second timeslot interchange outputs a second SDF frame, said method further comprising initializing to perform a first call packing in the second SDF frame and then performing the first call packing in the first SDF frame if a second data collection is of a DS3 type.

15. (Original) A method in accordance with claim 1 wherein a network system includes a first and a second timeslot interchange, and the first timeslot interchange outputs a first system data format (SDF) frame and the second timeslot interchange outputs a second SDF frame, said method further comprising:

deleting a first connection from the first SDF frame, wherein the first connection occupies p timeslots in the first SDF frame; and

moving a second connection from the second SDF frame to the first SDF frame, wherein the second connection occupies p timeslots in the second SDF frame.

16. (Original) A method in accordance with claim 1 further comprising:

determining whether a connection is one of the first type and a second type; and

searching for one of (m-1) timeslots and (m-3) timeslots if the connection is of the first type.

17. (Currently Amended) A method for switching multi-rate communications comprising:

obtaining first, second and third data collections of a first data type, each of the first, second, and third data collections comprising m sets of data;

allocating p timeslots, from frames of a communication format, to each of the first, second and third data collections, where p is less than m;

providing at least one overflow timeslot, from the frames of the communication format, for use with the first, second, and third data collections;

filling ~~a first set~~ first, second, and third sets of p timeslots with p sets of data from the first, second, and third data collections, respectively; and ~~of a first data collection, a second set of p timeslots with p sets of data of a second data collection, and a third set of p timeslots with p sets of data of a third data collection, wherein each of the first, the second, and the third data collection are of a common~~ first type, each of the first, ~~the second, and the third data collection include m sets of data, and p is less than m; and~~

loading a ~~fourth set of p~~ overflow timeslots with an mth set of data of the first data collection, an mth set of data of the second data collection, and an mth set of data of the third data collection.

18. (Original) A method in accordance with claim 17 wherein a network system includes at least two timeslot interchanges coupled to at least one space switch, a first route and a second route exists via the at least two timeslot interchanges and the at least one space switch, and the first route is different than the second route, said method further comprising:

routing the p sets of data of the first data collection via the first route if the first route is unblocked; and

selecting p timeslots of the second route different than the first route if the first route is blocked.

19. (Original) A method in accordance with claim 17 wherein a network system includes at least two timeslot interchanges coupled to at least one space switch, a first route and a second route exists via the at least two timeslot interchanges and the at least one space switch, and the first route is different than the second route, said method further comprising:

selecting p timeslots within the second route for transporting the p sets of data from the first data collection if the first route is blocked; and

performing a sequential search for the second route by identifying, in a consecutive fashion within the at least two timeslot interchanges, the p timeslots within the second route.

20. (Original) A method in accordance with claim 17 wherein a network system includes at least two timeslot interchanges coupled to at least one space switch, a first route and a second route exists via the at least two timeslot interchanges and the at least one space switch, and the first route is different than the second route, said method further comprising:

selecting an nth timeslot of the second route if the first route is blocked; and

performing a uniform search for the second route by determining whether the nth timeslot has less load than loads of remaining timeslots within the at least two timeslot interchanges.

21. (Original) A system for switching multi-rate communications comprising:

a time-space switch element configured to receive at least a first data collection having a common first type, wherein the first data collection includes m sets of data; and

a buffer from which p sets of data of the first data collection are communicated to a first set of p timeslots and from which at least one overflow set of data from the first data collection is communicated to at least one overflow timeslot, wherein p is less than m.

22. (Original) A system in accordance with claim 21 further comprising:

an input interface is configured to be coupled to said time-space switch element, wherein said interface is configured to receive a plurality of connections and transform the plurality of connections into a system data format;

an output interface configured to be coupled to said time-space switch element, said output interface configured to transform an output of said time-space switch element into the plurality of connections.

23. (Original) A system in accordance with claim 21 further comprising:

a memory configured to store a program, wherein the program is configured to determine whether a timeslot interchange that includes the memory has a capacity to support a number of connections of the first type and of a second type.

24. (Original) A system for switching multi-rate communications comprising:

a time-space switch element configured to receive at least a first, a second, and a third data collection, wherein each of the first, the second, and the third data collection have a common first type, and each of the first, the second, and the third data collection include m sets of data; and

a buffer from which p sets of data from the first data collection are communicated to a first set of p timeslots, from which p sets of data from the second data collection are communicated to a second set of p timeslots, from which p sets of data from the third data collection are communicated to a third set of p timeslots, from which an mth set of data from the first data collection are communicated to a fourth set of p timeslots, from which an mth set of data from the second data collection are communicated to the fourth set of p timeslots, and from which an mth set of data from the third data collection are communicated to the fourth set of p timeslots.

25. (Original) A system in accordance with claim 24 further comprising:

an input interface is configured to be coupled to said time-space switch element, wherein said interface is configured to receive a plurality of connections and transform the plurality of connections into a system data format;

an output interface configured to be coupled to said time-space switch element, said output interface configured to transform an output of said time-space switch element into the plurality of connections.